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10/529,435	03/25/2005	Thomas Schoebel-Theuer	5056.P0150US	2551
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/529,435

Applicant(s)

SCHOEBEL-THEUER, THOMAS

Examiner

Midys Rojas

Art Unit

2185

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 26-32 is/are pending in the application.
- 4a) Of the above claim(s) 26-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) 26-32 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
- Paper No(s)/Mail Date 12/31/07.
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 12/31/07 has been considered by the examiner.

Response to Arguments

2. Applicant's arguments filed 2/4/08 have been fully considered but they are not persuasive.

Applicant argues that "speculatively extended areas" that include directly required areas and expansion areas are not present in Nakhimovsky. However, the examiner would like to point out that it is unclear what applicant means by the term "speculatively extended areas". Additionally, Nakhimovsky discloses extended areas (memory pool that has been increased) that include directly required areas (originally allocated memory pool) and expansion areas (additionally memory allocated to the memory pool). See Col. 4, lines 1-33).

Applicant argues that since Nakhimovsky uses a malloc system, it does not have an address statement assigned to the data of a specific individual system. However, Nakhimovsky discloses that the malloc allocation of space for each individual system is done through the use of a pointer that is the starting address of the memory allocated. Thus, the pointer represents the address statement (see Col. 1, lines 23-30).

Applicant argues that Nakhimovsky does not teach only two systems sharing a common area. However, Nakhimovsky discloses a method wherein a plurality of individual systems (12a-n) use a common area of the data storage device (system memory 14 is shared by all processors, therefore, the processors use it as a common storage area, Col. 3, lines 45-52) as an expansion

area and this expansion area can be locked by the individual systems (Col. 3, line 45- Col. 4, line 33 discloses the allocation memory pools from the system memory, the expansion of the pools from the system memory, and the locking of the pools). Nakhimovsky does not specifically disclose that only two individual systems have access to the system memory. Instead, Nakhimovsky does not specify the number of processors that may be present in the system (but simply refers to the system as a multiprocessor system, Col. 3, lines 45-50). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the system of Nakhimovsky with only two processors since doing so still provides a multiprocessor system while a smaller multiprocessor system is simpler to operate and control.

Applicant argues that Nakhimovsky does not teach blocking the reserved areas or reserving a portion of the expansion areas. However, Nakhimovsky teaches blocking the reserved areas (locking of pools) or reserving a portion of the expansion areas (expanding the pools as needed). See Col. 4, lines 1-33.

Applicant argues that the reference to Bishop does not teach extended areas. However, the reference to Nakhimovsky is being relied upon for this teaching.

Applicant argues that Bishop does not teach releasing an entire or part of an expansion area in response to a request to do so. However, Bishop discloses at least part of a respective reserved expansion area going beyond the directly required area ("resources not in use, but reserved by a thread...." represent the expansion area) is released upon a reservation request (thread submits a request to the resource manager, Col. 3, lines 6-7) relating to at least part of the reserved expansion area from another individual system or from a data storage device (the

expansion area “can be temporarily loaned to a higher priority operation”, Col. 3, lines 45-52 wherein loaning the area, it is being released).

Arguments to claims 26-32 are not being considered since these claims have been withdrawn for the reasons stated below (Election/Restriction section of this office action).

Election/Restrictions

3. Newly submitted claims 26-32 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: These claims are drawn to a speculatively extending area defined as a continuous block of memory in the data storage device.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 26-32 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

4. For the purpose of discussing this Restriction, the following groups are being identified:
- I. Claims 1-19, drawn to a speculatively extending area in the data storage device.
 - II. Claims 26-32, drawn to a speculatively extending area defined as a continuous block of memory in the data storage device.

The inventions are distinct, each from the other because of the following reasons:

5. Inventions I and II are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the

subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because Invention I does not require the speculatively extending area to be a continuous block of memory in the data storage device. The subcombination has separate utility such as use in an arrangement where each individual system is assigned an individual continuous block of memory as its speculatively extending area.

The examiner has required restriction between combination and subcombination inventions. Where applicant elects a subcombination, and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear what the term “**speculatively** extended area” refers to and what conditions make an area “**speculatively** extended”.

Claim Rejections - 35 USC § 101

8. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9. Claims 14-19 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claimed invention does not fall within at least one of the four categories of patent eligible subject matter recited in 35 U.S.C. 101 (process, machine, manufacture, or composition of matter).

Claims 14-16 contain limitations drawn to reservation means wherein this means can be implemented in the form of software (paragraph 008 of specification), thus representing a program per se.

Claims 17-18 contain limitations drawn to requesting means wherein this means can be implemented in the form of software (paragraph 008 of specification), thus representing a program per se.

Claims 19 contains limitations drawn to communications means wherein this means can be implemented in the form of software (paragraph 008 of specification), thus representing a program per se.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1-3, 5, 10-11, 13-15, and 17-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakhimovsky (6,058,460).

Regarding Claim 1, Nakhimovsky discloses a method for regulating access to data in at least one data storage device (shared memory 14) in a system (Figure 1) comprising a plurality of individual systems (processors 12a-12n), in which each individual system reserves free data areas or address areas of a speculatively extended area in the data storage device (threads allocate their own memory pools from the system memory 14; Col. 3, line 66 – Col. 4, line 12) and blocks the reserved areas from access by other individual systems (Col. 4, lines 17-33; "...requires the pool to be locked which prevents other memory functions to be performed at the same time"; Col. 6, lines 16-44), wherein the reserved areas are speculatively extended by reserving expansion areas of said speculatively extended area along with reserving directly required areas of said speculatively extended areas (the directly required memory area being reserved is represented by the allocated memory pool which is expanded in the event that the size of the memory pool has been exhausted. The expansion is performed by allocating additional memory from the system memory, Col. 4, lines 14-33).

Regarding Claim 2, Nakhimovsky discloses a method characterized in that the individual systems identify (thread running on corresponding processor, Col. 3, lines 63-65) the directly required area from at least one address statement (additional threads allocate their own memory pools from the system memory. Thus, each thread is associated with a memory pool for user in executing its operations, Col. 4 lines 2-5; wherein allocation is done through the use of an allocation routine which uses a pointer as an address statement, Col. 1, lines 23-30).

Regarding Claim 3, Nakhimovsky discloses a method characterized in that at least part of the data storage device (14) is provided as a communication device for the individual systems (12a-n). Memory system 14 is provided with system bus 16 for communication with the individual processors 12a-n via the I/O channels shown (Figure 1 and Col. 3, lines 45-52)

Regarding Claim 5, Nakhimovsky discloses a method wherein the system comprises a plurality of individual systems (12a-n) is a distributed system (Figure 1 and “multi-processing network 10, Col. 3, lines 45-52).

Regarding Claim 10, Nakhimovsky discloses a method wherein the individual systems (12a-n) comprise individual modules (12a-n represent individual processors that are individual modules, Col. 3, lines 45-52).

Regarding Claim 11, Nakhimovsky discloses a method wherein the individual systems (12a-n) and the at least one data storage device (14) are decoupled from one another by buffer cache units (establishing a memory pool involves the allocation of a memory buffer of a pre-selected size, Col. 4, lines 17-33).

Regarding Claim 13, Nakhimovsky discloses a method wherein reservations relate to a read and/or write access (the threads that request the reservation of memory belong to individual processors, Col. 3, lines 63-65, and these threads run to execute an application by accessing a section of memory allocated to them; wherein reads and writes are types of accesses, Col. 3, lines 45-58).

Claim 14 is rejected using the same rationale as that of Claim 1 wherein the storage device for regulating access to data in a system is disclosed in Figure 1 of Nakhimovsky.

Claim 15 is rejected using the same rationale as that of Claim 2.

Claim 17 is rejected using the same rationale as that of Claim 1 wherein the individual system, particularly an individual module, is represented by one of the processors 12a-n and where the requesting means designed to reserve areas is represented by the locking mechanisms shown in Figure 2.

Claim 18 is rejected using the same rationale as that of Claim 2.

Claim 19 is rejected using the same rationale as that of Claims 3 and 4.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakhimovsky (6,058,460).

Nakhimovsky discloses a method wherein a plurality of individual systems (12a-n) use a common area of the data storage device (system memory 14 is shared by all processors, therefore, the processors use it as a common storage area, Col. 3, lines 45-52) as an expansion area and this expansion area can be locked by the individual systems (Col. 3, line 45- Col. 4, line 33 discloses the allocation memory pools from the system memory, the expansion of the pools from the system memory, and the locking of the pools). Nakhimovsky does not specifically disclose that only two individual systems have access to the system memory. Instead, Nakhimovsky does not specify the number of processors that may be present in the system (but

simply refers to the system as a multiprocessor system, Col. 3, lines 45-50). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the system of Nakhimovsky with only two processors since doing so still provides a multiprocessor system while a smaller multiprocessor system is simpler to operate and control.

14. Claims 6-9, 12, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakhimovsky (6,058,460) in view of Bishop et al. (5,826,082).

Regarding Claim 6, Nakhimovsky discloses the method as claimed in claim 1. Nakhimovsky does not teach at least part of a respective reserved expansion area going beyond the directly required area is released upon a reservation request relating to at least part of the reserved expansion area from another individual system or from a data storage device. Bishop et al. discloses at least part of a respective reserved expansion area going beyond the directly required area (“resources not in use, but reserved by a thread...”) is released upon a reservation request (thread submits a request to the resource manager, Col. 3, lines 6-7) relating to at least part of the reserved expansion area from another individual system or from a data storage device (“... can be temporarily loaned to a higher priority operation”, Col. 3, lines 45-52). It would have been obvious to one of ordinary skill in the art at the time the invention was made to allow the system to reallocate a previously allocated memory area to a new requestor, as disclosed by Bishop, since doing so gives the system flexibility for optimizing memory allocations for a more efficient memory system.

Regarding Claim 7, Nakhimovsky discloses the method as claimed in claim 1. Nakhimovsky does not teach the expansion area for an individual system is released upon a

reservation request coming from another individual system if said expansion area is requested as a directly required area by this other individual system. Bishop discloses that an expansion area is released upon a reservation request coming from another individual system if said expansion area is requested as a directly required area by this other individual system (suspending the request of the second thread and inserting an entry for the request of the third thread, Col. 5, lines 55-61; wherein the request for a directly required area is represented by the third thread's request for 150K of memory, Col. 5, lines 41-48). It would have been obvious to one of ordinary skill in the art at the time the invention was made to allow the system to reallocate a previously allocated memory area to a new requestor, as disclosed by Bishop, since doing so gives the system flexibility for optimizing memory allocations for a more efficient memory system.

Regarding Claim 8, Bishop discloses the expansion area being released upon a reservation request coming from another individual system if said expansion area is requested as an expansion area by this other individual system (suspending the request of the second thread and inserting an entry for the request of the third thread, Col. 5, lines 55-61; wherein the request for a directly required area is represented by the third thread's request for 150K of memory, Col. 5, lines 41-48 and these requests represent requests for expansion memory areas for the threads to complete execution of their operations, Col. 3, lines 5-18).

Regarding Claim 9, Bishop discloses that only a particular part of the expansion area is released upon a reservation request coming from another individual system if said expansion area likewise relates only to the expansion area in the case of this other individual system (only the amount of data that is needed by the request is released, 150K, see Col. 5, line 40-61).

Regarding Claim 12, Nakhimovsky discloses the method as claimed in claim 1. Nakhimovsky does not teach that the release of the directly required area upon a reservation request coming from another individual system is dependent on the urgency of the respective reservation. Bishop et al. discloses the release of the directly required area upon a reservation request coming from another individual system is dependent on the urgency of the respective reservation (dependent on the comparison of priorities, Col. 5, lines 49-61). It would have been obvious to one of ordinary skill in the art at the time the invention was made to allow the system to reallocate a previously allocated memory area to a new requestor, depending on the new requestors priority, as disclosed by Bishop, since doing so gives the system flexibility for optimizing memory allocations for a more efficient memory system, by allocating the memory to the higher priority threads.

Claim 16 is rejected using the same rationale as that of Claims 1 and 9.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Midys Rojas whose telephone number is (571) 272-4207. The examiner can normally be reached on M-TH 6:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sanjiv Shah can be reached on (571) 272-4098. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Midys Rojas/
Examiner, Art Unit 2185

MR

/Sanjiv Shah/
Supervisory Patent Examiner, Art Unit 2185